

US-PAT-NO: 5977635

DOCUMENT-IDENTIFIER: US 5977635 A

TITLE: Multi-level conductive structure including low capacitance material

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As the term is used herein, a low capacitance dielectric material represents a material having a lower dielectric constant than the material it **replaces**, e.g., lower than the dielectric material of dielectric layer 112 or the nitride material in the case of FIG. 9. Preferably but not necessarily, the low capacitance material has a dielectric constant in the range below about 3. In one embodiment, the low capacitance material is preferably a **low dielectric** constant (low K) spin-on material such as hydrogen silsesquioxane SOG (e.g., Dow Corning's Fox.RTM.), methyl silsesquioxane SOG, organic spin-on polymers (including **polyimides**, polybenzoxazoles, polyarylethers, or the like), and even spin-on aerogels. A self-leveling chemical vapor deposition (CVD) film (e.g., Trikon Technologies's low-K Flowfill.RTM.) may also be used in accordance with yet another embodiment of the invention.

	Type	L #	Hits	Search Text	DBs	Time Stamp	C o m m e n t s	E r r o r m e s s a g e s	E r r o r r e s t s
1	BRS	L8	139	(low adj dielectric) with (BPSG or PSG)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 15:29			0
2	BRS	L15	49	etch with (SOG or SOD or "spin on glass") with ((HF or hydrofluoric) or (HCl or hydrochloric))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 15:34			0
3	BRS	L22	0	etch with (SOG or SOD or "spin on glass") with (HCl or hydrochloric)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 15:35			0
4	BRS	L29	12	etch same (SOG or SOD or "spin on glass") same (HCl or hydrochloric)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 16:06			0
5	IS&R	L36	6	((("3767538") or ("4846929"))).PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 16:28			0
6	BRS	L50	2	43 and 438/745	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 16:36			0
7	BRS	L43	209	(Polyimide or Polysilsequioxane or Benzocyclobutene or Parylene or "Florinated polyimide" or Poly-naphthalene or "Amorphous Teflon" or Arerogel or Xerogel or "organic SOG" or SOG or MYLAR or Diamond)with (etch\$3 or clean\$3) with (HF or HCl or hydrofluoric or hydrochloric)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 16:59			0

	Type	L #	Hits	Search Text	DBs	Time Stamp	C o m m e n t s	E r r o r s
8	BRS	L57	64	43 and 438/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 17:29		0
9	BRS	L64	1758	(Polyimide or Polysilsequioxane or Benzocyclobutene or Parylene or "Florinated polyimide" or Poly-naphthalene or "Amorphous Teflon" or Arerogel or Xerogel or "organic SOG" or SOG or MYLAR or Diamond)with (hydrophobic or insoluble)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 18:33		0
10	BRS	L71	59	64 and 438/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 17:01		0
11	BRS	L78	3204 4	(Polyimide with hydrophobic or (insoluble adj2 water))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 17:12		0
12	BRS	L85	46	78 and 438/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 17:25		0
13	BRS	L92	565	(substitut\$3 or replac\$3 or "mixture thereof") same (polyimide with (low adj2 dielectric) or TEOS)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 17:37		0
14	BRS	L99	243	92 and 438/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 17:30		0
15	BRS	L106	44	(substitut\$3 or replac\$3 or "mixture thereof") same (polyimide with (low adj2 dielectric))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 17:54		0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Com men ts	Er ro rs	Er ro rs
1	BRS	L8	139	(low adj dielectric) with (BPSG or PSG)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 15:29			0
2	BRS	L15	49	etch with (SOG or SOD or "spin on glass") with ((HF or hydrofluoric) or (HCl or hydrochloric))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 15:34			0
3	BRS	L22	0	etch with (SOG or SOD or "spin on glass") with (HCl or hydrochloric)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 15:35			0
4	BRS	L29	12	etch same (SOG or SOD or "spin on glass") same (HCl or hydrochloric)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 16:06			0
5	IS&R	L36	6	((("3767538") or ("4846929"))).PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 16:28			0
6	BRS	L50	2	43 and 438/745	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 16:36			0
7	BRS	L43	209	(Polyimide or Polysilsequioxane or Benzocyclobutene or Parylene or "Florinated polyimide" or Poly-naphthalene or "Amorphous Teflon" or Arerogel or Xerogel or "organic SOG" or SOG or MYLAR or Diamond)with (etch\$3 or clean\$3) with (HF or HCl or hydrofluoric or hydrochloric)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 16:59			0

	Type	L #	Hits	Search Text	DBs	Time Stamp	C o m m e n t s	E r r o r m e s s a g e s	E r r o r s
16	BRS	L113	51	(substitut\$3 or replac\$3 or "mixture thereof") same (polyimide with ((low adj2 dielectric) or organosilicon or organosilicate))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 17:58			0
17	BRS	L120	1758	(Polyimide or Polysilsequioxane or Benzocyclobutene or Parylene or "Fluorinated polyimide" or Poly-naphthalene or "Amorphous Teflon" or Arerogel or Xerogel or "organic SOG" or SOG or MYLAR or Diamond)with (hydrophobic or insoluble)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/01/29 18:33			0